

- ☐ First aid kit visible and readily available to the crew and properly marked "First Aid Kit" 46 CFR 121.710  
46 CFR 160.041

## Fire Protection:

- ☐ Fire control plan 46 CFR 116.530
- Permanently posted
  - Copy permanently stored in weathertight container outside deckhouse SOLAS 74/78 II-2/20
- ☐ Fire and smoke detection systems (required on existing wood / FRP vessels) 46 CFR 118.115
- Sensors tested 46 CFR 118.400(c)
  - Alarms tested 46 CFR 118.400(e)
- ☐ Portable and semiportable fire extinguishers 46 CFR 115.810
- Annual service in accordance with NFPA 10 46 CFR 115.810(b)(1)
    - Date cylinders hydro-tested \_\_\_\_\_
  - Proper location 46 CFR 118.500  
46 CFR 118.520

Required		On Board	
Number	Class	Number	Class

- ☐ Fixed firefighting for galley vent hood system 46 CFR 118.400(d)  
46 CFR 118.425

Notes: \_\_\_\_\_

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- ☐ Fixed fire extinguishing systems 46 CFR 115.810(a)(2)  
46 CFR 115.810(b)(2)  
46 CFR 118.400  
46 CFR 118.410  
46 CFR 118.420
- Annual service
    - Date cylinders weighed \_\_\_\_\_
    - Date cylinders hydro-tested \_\_\_\_\_
  - Sprinklers tested in vehicle spaces
  - Alarms
  - Engine / power ventilation shutdowns tested (engine shutdown not required on existing vessels with CO<sub>2</sub>, BUT is required with Halon) 46 CFR 119.465(h)  
NVIC 6-72
  - Manual ventilation closures on protected spaces
  - Instructions at controls and in space 46 CFR 122.612
  - Piping
  - Valves
  - Controls

Spaces Protected	Agent	Capacity

- ☐ Fire main system and stations 46 CFR 115.810(a)(3)
- Fire main system tested 46 CFR 118.310
    - Piping
    - Valves
    - Fittings
  - Number hose stations required \_\_\_\_\_ 46 CFR 115.810(c)
  - Fire hose
    - Minimum 5/8-inch hose and nozzle 25-50 feet in length 46 CFR 118.320
    - 1.5-inch hose and nozzle (required for vessels > 65 feet and vessels carrying > 49 passengers)
    - Nozzles and spanners

Number of Hoses Required	Number of Hoses On Board	Diameter of Each Hose	Length of Each Hose

Notes: \_\_\_\_\_

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<input type="checkbox"/>	<b>Lifefloats and buoyant apparatus</b>	46 CFR 117.200(a)(2) 46 CFR 117.175(d) 46 CFR 117.175(f) 46 CFR 160.010-8
	<ul style="list-style-type: none"> <li>Coast Guard approval</li> <li>Lifeline</li> <li>Pendants</li> <li>Two paddles per lifefloat <ul style="list-style-type: none"> <li>4 feet in length</li> <li>Marked with vessel name</li> </ul> </li> <li>Waterlight with proper battery <ul style="list-style-type: none"> <li>Properly mounted, secure splices</li> <li>Watertight globe</li> <li>Float-free</li> </ul> </li> <li>Marked with vessel name</li> <li>Stowage</li> <li>Properly sized and approved weak link</li> <li>Sea painter</li> <li>Retro-reflective tape</li> </ul>	46 CFR 122.604(g)
<input type="checkbox"/>	<b>Inflatable buoyant apparatus</b>	46 CFR 117.200(a)(4) 46 CFR 160.010
	<ul style="list-style-type: none"> <li>Annual service</li> </ul>	
<input type="checkbox"/>	<b>Inflatable liferafts</b>	46 CFR 117.200(a)(1)
	<ul style="list-style-type: none"> <li>Capacity of 6 or more persons</li> <li>Stowage <ul style="list-style-type: none"> <li>Float-free</li> </ul> </li> <li>Annual service</li> </ul>	46 CFR 117.130 46 CFR 160.151
<input type="checkbox"/>	<b>Inflatable survival craft placards posted</b>	46 CFR 122.518
<input type="checkbox"/>	<b>Rescue boats / rescue platforms</b> (vessels > 65 feet)	46 CFR 117.210
	<ul style="list-style-type: none"> <li>Marked with vessel name</li> <li>Capacity</li> <li>Retro-reflective tape</li> <li>Small, lightweight with floatation</li> <li>Readily launched, easily maneuvered</li> <li>Capable of recovering person without capsizing</li> </ul>	46 CFR 122.604(a)(1) 46 CFR 122.604(d) 46 CFR 122.604(i) NVIC 1-87

Notes: \_\_\_\_\_

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<input type="checkbox"/>	<b>Cooling system</b>	46 CFR 119.420
	<ul style="list-style-type: none"> <li>Type of engine cooling system _____</li> <li>Temperature gauges (operating station)</li> <li>Installation</li> </ul>	46 CFR 119.410 46 CFR 119.422
<input type="checkbox"/>	<b>Exhaust system</b>	46 CFR 119.425
	<ul style="list-style-type: none"> <li>Type of exhaust cooling system _____</li> <li>Loss of cooling alarm on vessel with wet exhaust (vessels with a separate exhaust cooling pump must have a loss of cooling alarm) <ul style="list-style-type: none"> <li>Visible / audible</li> <li>Located at operating station</li> </ul> </li> <li>Leaks <ul style="list-style-type: none"> <li>Seams</li> <li>Elbows</li> <li>Joints</li> <li>Flexible hoses</li> </ul> </li> </ul>	46 CFR 119.430
<input type="checkbox"/>	<b>Fuel system</b>	46 CFR 115.804
	<ul style="list-style-type: none"> <li>Tank space properly vented <ul style="list-style-type: none"> <li>&gt; 500 cubic feet = gooseneck &gt; 2.5 inches</li> <li>&lt; 500 cubic feet = gooseneck &gt; 1.5 inches</li> </ul> </li> <li>Fuel tank vents <ul style="list-style-type: none"> <li>Vent openings not located adjacent to possible sources of vapor ignition</li> <li>30 x 30 mesh screen</li> </ul> </li> <li>Independent fuel tanks grounded <ul style="list-style-type: none"> <li>Electrically bonded to a common ground</li> </ul> </li> <li>Portable fuel tanks <ul style="list-style-type: none"> <li>Stowed on deck in racks</li> <li>"No Smoking" placards posted</li> </ul> </li> <li>Shutoff valves tested (tank and engines) <ul style="list-style-type: none"> <li>Located at the ends of each fuel line</li> <li>If tank end not located outside of tank space, handle must be within 12-inch reach and shielded</li> </ul> </li> <li>Fuel strainers</li> <li>Solid bottom type petcocks with tapered plugs and union bonnets</li> <li>Fuel tank fill hose <ul style="list-style-type: none"> <li>Top flange grounded to tank</li> <li>Flexible hoses</li> </ul> </li> <li>Termination of filling, sounding or vent pipes outside vessel</li> </ul>	46 CFR 119.470 46 CFR 119.450 46 CFR 119.440 46 CFR 119.458 46 CFR 119.455 46 CFR 119.445

Notes: \_\_\_\_\_

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- ☐ **Emergency evacuation plan** 46 CFR 116.520
  - Describe actions for fires and flooding
  - Evacuating procedures
  - Refuge area (3 square feet / person)
  - Show two means of escape from each space
  - Abandon ship plan
- ☐ **Means of escape** 46 CFR 116.500
  - Operable from both sides
  - Marked "Emergency Exit, Keep Clear" 46 CFR 116.606
- ☐ **Embarkation stations** 46 CFR 116.510
  - Handholds
  - Well-illuminated
  - Handrails and lifelines with openings to allow passengers to board survival craft
- ☐ **Cooking and heating systems**
  - LPG / CNG stowage 46 CFR 121.240
  - Shutoff valves installed on gas systems 46 CFR 121.220
  - Sea rails installed on galley stoves
- ☐ **Sanitary inspection** 46 CFR 115.818
  - Galley
  - Serving pantries
  - Lockers
- ☐ **Ventilation** 46 CFR 116.600
  - Remote shutdown
- ☐ **Passenger Safety Orientation** 46 CFR 122.506
  - Public announcement
  - Card or pamphlet
- ☐ **Crew and passenger list** 46 CFR 122.502

Notes: \_\_\_\_\_

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- ☐ **Bilge pumps tested** 46 CFR 115.804(h)  
46 CFR 119.520(a)
  - Source of power for each pump
  - Overboard discharge
  - Visual indicator for auto bilge pump operation 46 CFR 119.530(b)
- ☐ **Portable bilge pump tested** 46 CFR 119.520(b)
  - (vessels < 65 feet)
  - Suction capable of reaching the bottom of all compartments
- ☐ **Bilge piping** 46 CFR 119.510
  - Check valves in each compartment or stop / check valves at manifold
  - Valve fitted on collision bulkhead
    - Screw down valve type
    - Operable from weatherdeck if forward; readily accessible if aft
- ☐ **Bilge high level alarm** 46 CFR 119.530
  - Visible / audible
  - Located at operating stations
- ☐ **Deck machinery** 46 CFR 115.816
  - Windlass
  - Winches
  - Capstans
  - Controls
  - Guards
- ☐ **Pressure vessels required to be periodically tested** 46 CFR 115.812  
46 CFR 61.10
  - Inspected every 3 years

Service	Working Pressure	Relief Valve Setting	Date Tested or Examined

Notes: \_\_\_\_\_

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- ☐ **Noncombustible trim** 46 CFR 116.422
  - Ceilings
  - Interior finish
  - Decorations
  - Reasonable paint coatings
- ☐ **Fire-resistant furnishings** 46 CFR 116.423
  - Furniture meets UL Std. 1056
  - Draperies and curtains meet NFPA Std. 701
  - Rugs and carpet meet ASTM E-84 or E-648
- ☐ **Fire loads** 46 CFR 116.427
  - Low-risk areas < 3 pounds / square feet
  - High-risk areas < 7.5 pounds / square feet
- ☐ **Windows in fire control boundaries** 46 CFR 116.433
  - Laminated glass
  - Steel frames
- ☐ **Fire doors** 46 CFR 116.435
  - A-60, A-30, A-15 bulkhead = A-15 door
  - A-0 bulkhead = A-0 door
  - Self-closing (stairtower and MVZ)
  - Operable from either side
- ☐ **Stairtowers** 46 CFR 116.438
  - Rails
  - Obstructions
- ☐ **Balconies** 46 CFR 116.439
  - Automatic sprinkler system
  - Each level with two means of escape
- ☐ **Atriums** 46 CFR 116.440
  - Smoke detection system (vessels with overnight passengers)
  - Smoke extraction system
  - Automatic sprinkler system
  - Each level with two means of escape

Notes: \_\_\_\_\_

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- ☐ **Switchboards and distribution panels** 46 CFR 120.330
  - Circuits and electrical equipment marked and identified 46 CFR 120.220
    - Warning sign for multiple power sources
  - Protective covering
  - Dripshield
  - Overcurrent protection
- ☐ **Radios fused at main panel** 46 CFR 120.392
- ☐ **Cable, wiring, receptacles, outlets, accessories** 46 CFR 120.340
  - Installation
    - Wire type 46 CFR 120.320(d)
    - Wire size 46 CFR 120.340(c)
    - Splices 46 CFR 120.340(p)
    - Connectors
    - Metal wire supports every 24 inches (not required on existing vessels) 46 CFR 120.340(b)
  - Grounding 46 CFR 120.370
  - Overcurrent protection 46 CFR 120.372  
46 CFR 120.380
- ☐ **Miscellaneous motors and controllers**
  - Proper location 46 CFR 120.320
  - Grounding 46 CFR 120.372
- ☐ **Lighting fixtures** 46 CFR 120.410
  - Suitable guards
  - Properly secured
- ☐ **Portable lighting** 46 CFR 120.430
  - At least two lights
    - One at operating station
    - One at entrance to propulsion / machinery space

Notes: \_\_\_\_\_

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## Section 3: Inspection Items

### Navigation Safety:

- ☐ Voyage plan  
(vessels on oceans / coastwise routes, vessels with overnight passengers) 46 CFR 122.503
- ☐ Passenger count  
(if voyage plan not required) 46 CFR 122.504
- ☐ Emergency instruction list posted 46 CFR 122.510
- ☐ Navigation publications 46 CFR 121.420
  - Current and corrected charts (large enough scale to navigate safely)
  - U.S. Coast Pilot
  - Coast Guard Light List
  - Tide tables
  - Tidal current tables
  - International Rules of the Road (SOLAS only)
- ☐ Navigation lights tested  
(vessels > 65 feet must meet UL 1104) 46 CFR 120.420  
33 CFR Part 84  
72 COLREGS
  - Side shields
    - Fitted as needed
    - Painted black matte
- ☐ Radar 46 CFR 121.404
- ☐ Magnetic compass 46 CFR 121.402  
(vessels on oceans / coastwise / limited coastwise routes)
  - Illuminated (unless limited to daytime operations)

Notes: \_\_\_\_\_

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## Section 5: Drydock Inspection Items

### Hull Structural Integrity:

- ☐ Vessel plans available  
(vessels with load lines) 46 CFR 115.612
- ☐ External structural members 46 CFR 115.610  
NVIC 7-95
  - Plating
  - Planking
  - Caulking
  - Reinforcing straps
  - Stem
  - Transom
  - Bilge keels
  - Keel
  - Welds
  - Pitting
  - Signs of electrolysis

#### Overall Condition:

Poor	Good

Areas of particular interest: \_\_\_\_\_

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## **Certificates:**

- |   |  |
|---|--|
| <input type="checkbox"/> COI posted   | 46 CFR 115.107                               |
| • All pages visible   | 46 CFR 115.302                               |
| <input type="checkbox"/> Stability letter posted  | 46 CFR 115.306                               |
| <input type="checkbox"/> Small Passenger Vessel (SPV) decal posted                                | 46 CFR 115.310                               |
| <input type="checkbox"/> Station bill posted<br>(vessels > 65 feet with more than 4 crew members) | 46 CFR 122.514                               |
| <input type="checkbox"/> Passenger safety bill posted   | 46 CFR 122.515                               |
| <input type="checkbox"/> Waste management plan<br>(oceangoing vessels ≥ 40 feet)                  | 33 CFR 151.57                                |
| <input type="checkbox"/> Red Cross first aid / CPR cards for 50% of crew                          | NVIC 1-91                                    |
| <input type="checkbox"/> Annual drug and alcohol program audit                                    | 46 CFR Part 16                               |
| <input type="checkbox"/> Liferaft servicing certificates  | 46 CFR 160.151-57(p)<br>SOLAS 74/78 III/19.8 |
| • Annual service  |  |
| <input type="checkbox"/> Fixed fire extinguisher servicing certificates                           | 46 CFR 115.810(b)(2)                         |
| • Annual service  |  |
| <input type="checkbox"/> Required international safety convention certificates posted and valid   | 46 CFR 115.302                               |

## **Manning Certification:**

- |   |                |
|---|----------------|
| <input type="checkbox"/> Operator's license | 46 CFR 15.805  |
| • Name                                      | 46 CFR 122.402 |
| • Issue date                                |                |
| • Tonnage                                   |                |
| • Route                                     |                |

Notes: \_\_\_\_\_

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## **Watertight Integrity:**

**NOTE:** Guidance on watertight and weathertight inspections can be found in MSM Volume II, Chapter 6.F.5.

- |  |  |
|--|--|
| <input type="checkbox"/> Hatches   | 46 CFR 116.1160<br>46 CFR 171.124<br>MSM Vol. IV Ch. 6.I.5 |
| • Dogs or other securing appliances  |  |
| • Covers   |  |
| • Gaskets  |  |
| • Coamings   |  |
| <input type="checkbox"/> Airports below weatherdecks                               | MSM Vol. IV Ch. 6.I.4                                      |
| • Dogs or other securing appliances  |  |
| • Rims or seats  |  |
| • Glass  |  |
| • Dead covers  |  |
| • Hinges and lugs  |  |
| <input type="checkbox"/> Self-bailers and cockpit freeing ports                    | 46 CFR 116.1120<br>46 CFR 171.145<br>46 CFR 171.150        |
| • Check valves   |  |
| • Required area  |  |
| <input type="checkbox"/> Compartment or inner bottom drains<br>(drydocking drains) |  |
| • Secure plugs   |  |
| <input type="checkbox"/> Draft marks and load lines                                | 46 CFR 122.602   |
| • Proper locations   |  |
| • Legibly inscribed  |  |
| • Proper spacing and size  |  |
| • Load line markings verified (vessels ≥ 79 feet)                                  |  |

## **Rudders, Propellers, and Tailshafts:**

- |                                    |                |
|------------------------------------|----------------|
| <input type="checkbox"/> Rudder(s) | 46 CFR 115.610 |
| • Skeg                             |                |
| • Stock                            |                |
| • Fastenings                       |                |
| • Bushings                         |                |

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## Section 2: Certificates and Documents

Name of Certificate	Issuing Agency	ID #	Port Issued	Issue Date	Exp. Date	Endors. Date
<b>Certificate of Documentation</b> No Change	USCG					
<b>Passenger Ship Safety (PSS)</b> No Change	USCG					
<b>Load Line</b> No Change						
<b>International Tonnage (ITC)</b> No Change						
<b>Safety Management (SMC)</b> No Change						
<b>Document of Compliance (DOC)</b> No Change						

## Section 6: Special Drydock Extension Underwater Survey

**NOTE:** Drydock extensions of up to 30 months are available to steel or aluminum K-boats that operate on certain low-risk routes in fresh water. Guidance for conducting these surveys is found in MSM Vol. II/B3.A.4.d.

**WARNING:** ALL passengers must be removed from vessel prior to removal of sea valves.

### Review of Application for Underwater Survey:

- ☐ Submitted 90 days before survey date
- ☐ Identify diving contractor
  - Number of divers
  - Type of diving equipment
  - NDT and repair capabilities
- ☐ Copy of diving operations manual
  - Means of waterborne diver support
- ☐ Means of taking rudder bearing clearances
- ☐ Sea chest blanks
- ☐ Letter from master / chief engineer / person-in-charge
- ☐ Diving personnel / equipment
  - NDT qualifications
  - Repair qualifications
  - Video / audio equipment
  - Coast Guard and OSHA safety regulations
- ☐ Hull preparation
  - Cleaning method \_\_\_\_\_
  - Hull openings permanently marked

Notes: \_\_\_\_\_

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## Involved Parties & General Information:

Vessel's Representatives
_____
_____
Phone Numbers

Owner—Listed on DOC (if applicable), or COFR
_____
_____
_____
No Change

Operator
_____
_____
_____
No Change

## **Section 7: Appendices** **Recommended US Vessel Deficiency Procedures:**

Step	Action								
1	Identify deficiency.								
2	Inform vessel representative.								
3	Record on the <i>Deficiency Summary Worksheet</i> (next page).								
4	If deficiency is corrected prior to end of inspection, go to Step 7.								
5	<p>If deficiency is unable to be corrected prior to end of inspection, issue CG-835 in accordance with table below.</p> <table border="1"> <tr> <th>IF deficiency:</th><th>THEN issue CG-835:</th></tr> <tr> <td> <p>Does NOT immediately impact crew/passenger safety, hull seaworthiness, or the environment, e.g.,</p> <ul style="list-style-type: none"> <li>• Missing placards</li> <li>• Non-metallic expansion joints more than 10 years in service</li> </ul> </td><td> <p>That provides a specific time for correcting deficiency, e.g.,</p> <ul style="list-style-type: none"> <li>• "X" number of days</li> <li>• At next drydock</li> </ul> </td></tr> <tr> <td> <p>Allows vessel operations to be MODIFIED to meet less stringent requirements, e.g.,</p> <ul style="list-style-type: none"> <li>• Expired international certificates</li> <li>• Automation defect</li> <li>• Insufficient lifesaving equipment</li> </ul> </td><td> <p>That restricts operation of vessel to meet current vessel conditions, e.g.,</p> <ul style="list-style-type: none"> <li>• Reduced route</li> <li>• Increased crew</li> <li>• Fewer passengers</li> </ul> </td></tr> <tr> <td> <p>DOES immediately impact crew/passenger safety, hull seaworthiness, or the environment, and cannot be modified to meet less stringent requirements, e.g.,</p> <ul style="list-style-type: none"> <li>• Missing or defective firefighting equipment</li> <li>• Structural defect or damage</li> </ul> </td><td> <p>That requires the deficiency to be corrected prior to operating vessel ("NO SAIL" item), e.g.,</p> <ul style="list-style-type: none"> <li>• Prior to carrying passengers</li> <li>• Prior to carrying cargo</li> </ul> </td></tr> </table>	IF deficiency:	THEN issue CG-835:	<p>Does NOT immediately impact crew/passenger safety, hull seaworthiness, or the environment, e.g.,</p> <ul style="list-style-type: none"> <li>• Missing placards</li> <li>• Non-metallic expansion joints more than 10 years in service</li> </ul>	<p>That provides a specific time for correcting deficiency, e.g.,</p> <ul style="list-style-type: none"> <li>• "X" number of days</li> <li>• At next drydock</li> </ul>	<p>Allows vessel operations to be MODIFIED to meet less stringent requirements, e.g.,</p> <ul style="list-style-type: none"> <li>• Expired international certificates</li> <li>• Automation defect</li> <li>• Insufficient lifesaving equipment</li> </ul>	<p>That restricts operation of vessel to meet current vessel conditions, e.g.,</p> <ul style="list-style-type: none"> <li>• Reduced route</li> <li>• Increased crew</li> <li>• Fewer passengers</li> </ul>	<p>DOES immediately impact crew/passenger safety, hull seaworthiness, or the environment, and cannot be modified to meet less stringent requirements, e.g.,</p> <ul style="list-style-type: none"> <li>• Missing or defective firefighting equipment</li> <li>• Structural defect or damage</li> </ul>	<p>That requires the deficiency to be corrected prior to operating vessel ("NO SAIL" item), e.g.,</p> <ul style="list-style-type: none"> <li>• Prior to carrying passengers</li> <li>• Prior to carrying cargo</li> </ul>
IF deficiency:	THEN issue CG-835:								
<p>Does NOT immediately impact crew/passenger safety, hull seaworthiness, or the environment, e.g.,</p> <ul style="list-style-type: none"> <li>• Missing placards</li> <li>• Non-metallic expansion joints more than 10 years in service</li> </ul>	<p>That provides a specific time for correcting deficiency, e.g.,</p> <ul style="list-style-type: none"> <li>• "X" number of days</li> <li>• At next drydock</li> </ul>								
<p>Allows vessel operations to be MODIFIED to meet less stringent requirements, e.g.,</p> <ul style="list-style-type: none"> <li>• Expired international certificates</li> <li>• Automation defect</li> <li>• Insufficient lifesaving equipment</li> </ul>	<p>That restricts operation of vessel to meet current vessel conditions, e.g.,</p> <ul style="list-style-type: none"> <li>• Reduced route</li> <li>• Increased crew</li> <li>• Fewer passengers</li> </ul>								
<p>DOES immediately impact crew/passenger safety, hull seaworthiness, or the environment, and cannot be modified to meet less stringent requirements, e.g.,</p> <ul style="list-style-type: none"> <li>• Missing or defective firefighting equipment</li> <li>• Structural defect or damage</li> </ul>	<p>That requires the deficiency to be corrected prior to operating vessel ("NO SAIL" item), e.g.,</p> <ul style="list-style-type: none"> <li>• Prior to carrying passengers</li> <li>• Prior to carrying cargo</li> </ul>								
6	Enter CG-835 data in MIDR.								
7	Enter deficiency data in MSDS.								
8	Initiate Report of Violation (ROV) if necessary.								

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[illegible]

Deficiencies identified should be listed with MSIS codes. At completion of inspection/examination, any outstanding deficiencies shall be entered in MIDR or PSDR as appropriate. All deficiencies found (outstanding and completed) shall be entered in the Deficiency Summary. Worklist items, which serve only as memory joggers to complete inspection/examination (e.g., test emergency fire pump), should not be coded as deficiencies.

### **MSIS Codes for Deficiencies:**

<b>BS</b>	Ballast	<b>DC</b>	Dry Cargo	<b>IC</b>	I/C Engine
<b>BI</b>	Bilge	<b>ES</b>	Electrical	<b>LS</b>	Lifesaving
<b>BA</b>	Boiler, Aux.	<b>FF</b>	Firefighting	<b>MI</b>	Miscellaneous
<b>BM</b>	Boiler, Main	<b>FL</b>	Fuel	<b>NS</b>	Navigation
<b>CS</b>	Cargo	<b>GS</b>	General Safety	<b>PP</b>	Propulsion
<b>DM</b>	Deck Machinery	<b>HA</b>	Habitation	<b>SS</b>	Steering
<b>DL</b>	Doc., Lics., Pmts.	<b>HU</b>	Hull		

**Total Time Spent Per Activity:**

Regular Personnel (Active Duty)			
ACTIVITY TYPE	ACTIVITY	TRAINING	(PERS) MI

TOTAL ADMIN HOURS	TOTAL TRAVEL HOURS
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Reserve Personnel			
ACTIVITY TYPE	ACTIVITY	TRAINING	(PERS) MI

TOTAL ADMIN HOURS	TOTAL TRAVEL HOURS
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Auxiliary Resources	
TOTAL BOAT HOURS	TOTAL AIRCRAFT HOURS

**Conversions:**

Distance and Energy				
Kilowatts (kW)	X	1.341	=	Horsepower (hp)
Feet (ft)	X	3.281	=	Meters (m)
Long Ton (LT)	X	.98421	=	Metric Ton (t)
Liquid (NOTE: Values are approximate.)				
Liquid	bbl/LT	m <sup>3</sup> /t	bbl/m <sup>3</sup>	bbl/t
Freshwater	6.40	1.00	6.29	6.29
Saltwater	6.24	.975	6.13	5.98
Heavy Oil	6.77	1.06	6.66	7.06
DFM	6.60	1.19	7.48	8.91
Lube Oil	7.66	1.20	7.54	9.05
Weight				
1 Long Ton	=	2240 lbs	1 Metric Ton	= 2204 lbs
1 Short Ton	=	2000 lbs	1 Cubic Foot	= 7.48 gal
1 Barrel (oil)	=	5.61 ft = 42 gal = 6.29 m <sup>3</sup>	1 psi	= .06895 Bar = 2.3106 ft of water
Temperature: Fahrenheit = Celsius (°F = 9/5 °C + 32 and °C = 5/9 (°F – 32))				
0	=	-17.8	80	= 26.7
32	=	0	90	= 32.2
40	=	4.4	100	= 37.8
50	=	10.0	110	= 43.3
60	=	15.6	120	= 48.9
70	=	21.1	150	= 65.6
200	=	93.3	250	= 121.1
300	=	148.9	400	= 204.4
500	=	260	1000	= 537.8
Pressure: Bars = Pounds per square inch				
1 Bar	=	14.5 psi	5 Bars	= 72.5 psi
2 bars	=	29.0 psi	6 Bars	= 87.0 psi
3 Bars	=	43.5 psi	7 Bars	= 101.5 psi
4 Bars	=	58.0 psi	8 Bars	= 116.0 psi
9 Bars	=	130.5 psi	10 Bars	= 145.0 psi